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## Commentary on “Diving in where angels fear to tread”

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On first reading I did wonder whether I was being asked to comment on a kind of Sokal hoax paper. Then I thought that a hoax piece, while incomprehensible, would have attempted to provide a better foundation of argument and evidence than is displayed here. I twice emailed the journal editor to confirm that this really was the paper I was being asked to comment on. If it had been sent to me in an editorial capacity I would have returned it without review to the author, with a polite message stating that it was not ready for publication. I say this not because we should be hidebound by format or formality, or because of what, on third reading, I now think the piece is trying to establish. I would never reject papers because of what they research, the methods they employ to do it, or what they find. I say it because the paper is so poorly written, un-evidenced, incoherent, vehemently dogmatic, and repetitive.

I initially considered refusing the invitation to write a comment because it is difficult to think of much to say about a paper that is so illogical. However, I have, I hope, thought of a few issues that might be helpful to discuss in relation to at least some of what I discern are some of the more comprehensible parts of the paper. I do not intend to use the space to log each non-sequitur, grammatical error, or circular self-reference. Following up these self-references I discovered that Raven has written much of this material before, for many years, including exact reproduction of the confusing Figure 1 and its claims, and several other passages, including some of the suggestions for what to do next. Turnitin software reveals layers of repetition over time, with different titles, amounting to 62% duplication in this paper. Most of the ‘substance’ of this paper even appeared in a previous Open Dialogue in this journal in 2011. On that occasion it was also overstated and largely un-evidenced, but slightly more coherent than in this newer version.

Based on reading earlier versions, and using these to help create a better semblance of order for this new version, Raven appears to be saying that the entire earth, perhaps all of science, the process of education, and the field of psychology are under a serious threat due to a lack of logic and scepticism in research. Raven claims to be trying to explain why we have created this threat, and what we can do about it. These are huge claims, if true. Should we take them seriously?

The physicist Baez’s (1992) semi-serious ‘crackpot index’ was devised to help discern which of the many missives sent to him were not worth further consideration, without unduly suppressing opportunities for originality or critique of existing orthodoxy. The single highest score in the index is awarded when the writer compares the opposition or target as being like Nazis or similar. Raven several times refers to those he is criticising in the paper as ‘fascist’. High scores in the index are also awarded for authors comparing themselves or their ideas to the revolutions in physics created by Einstein, Newton or Galileo. Since at least 2011 and again in this paper, Raven suggests that his Figure 1 proposes a transformation for psychology analogous to that of Newton’s work on forces. In fact Raven has been comparing his ideas on many topics to those of Newton and labelling opponents as “fascist” since at least 1984.

Other points on the crackpot index are awarded for issues like using unfamiliar terms and not explaining them properly, making dogmatic statements that could easily be false but without new evidence or coherent argument, writing comments or exclamations in full capitals, and claims that the work is somehow leading to a “paradigm” shift. Incidences such as these occur throughout this new Raven paper, although capitals are used only occasionally (e.g. “WOW”). The paper instead uses single-line statements, indented statements that are not quotations, and copious italics and bold fonts (sometimes in combination as in “**BUT**”). Despite describing the paper as a “canter through the literature”, Raven cites very little literature, and describes almost no actual research. The references are largely self-

references and circular in that they mostly lead to no research evidence, and the rest are very dated. Of course, any one or two of these characteristics in a paper might be defensible or explicable. Are these elements of the crackpot index good indicators of something amiss here?

In the paper, Raven makes and repeats many claims that do not stand up to scrutiny, and a few examples are illustrated here. Towards the end of a paper that is mostly about education insofar as it is about anything, Raven concludes, in a section entitled “Some conclusions to be drawn”, that “reductionist science has brought the planet as we know it to the brink of collapse”. Whether true or not, in no way can this be concluded from the foregoing. Logically, it is a non-sequitur.

Raven makes claims like “one of the things that we learned from our systemogram is that human behaviour is primarily determined by the operation of the systems in which we live and work and not by individual talents, abilities, or opinions”. He is confusing a picture that he created with actual evidence that something is true. The paper contains no clear evidence also no clearly laid out argument that this is true. It is neither a research paper nor a coherent philosophical piece. Raven describes the idea that “human behaviour is primarily determined by the operation of the systems in which we live and work and not by individual talents, abilities, or opinions” as paradigm-shifting in a Newtonian style. And so that “*it will be necessary to largely turn psychology inside out* in the sense in which Newton turned physics inside out”. However, this is very far from a new idea.

Psychologists and philosophers have always ranged from those at extremes believing that everything stems from an internal source, such as solipsists, to those who believe that all is determined by outside sources, including some behaviourists. In sociology especially, but in social sciences more generally, there have been long-standing debates over the relative importance of structure (external) and agency (internal). Trying to allocate percentages (between 0 and 100%) to each factor has gone on for as long as the equivalent debate about the percentages of outcomes attributable to nature or nurture. Both are reminiscent of Hebb's rectangle (Francis and Kaufer 2011). Large-scale studies of populations tend to emphasise the role of external events, processes and characteristics that either bound or determine human activities. In-depth work based on asking people about their lives tends to reveal more about their personal issues and choices. This debate has existed since at least 1960. Raven needs to read more social science.

Raven also objects to a preoccupation in education on narrow tests of supposedly cognitive abilities, and the ignoring of wider educational outcomes and issues by psychologists and educators more generally. It is true that there is a considerable body of work, of variable quality, about testing, qualifications and academic attainment at school. But this body remains very much in a minority within education research. As an example, in the current issue of the British Educational Research Journal (at time of writing), issue 45, 5, there are nine articles, whose subject areas are listed below. Only the papers about Art and homework could be conceived as being loosely about attainment (but not school), and the other papers cover a range of topics not about outcomes at all, or about things like health, attitudes, participation, equity, and welfare. BERJ is a generic journal and routinely covers a very wide range of approaches and topics.

- Equity in education
- Teacher identity
- Attitudes
- Learning Art at home
- Health promotion
- Family welfare
- Homework
- Expansion of Academies
- Teacher reflection

At the same time, the current issue of the British Journal of Sociology of Education, issue 40, 8, has 12 articles, as listed below. Only the paper about perceptions of performance could be described as being about attainment, and even this is a stretch. Again, there are papers about a wide range of other potential outcomes at school, and many others about no outcomes or wider issues. And again, this is not a especially distinctive issue of the journal. BJSE has a disciplinary (Sociology) theme, but it covers a wide range of topics and educational outcomes.

- The workforce
- Minecraft (the game) and equity
- Ethnic widening participation
- SES widening participation
- School opposition
- Aggression at school
- Bullying
- Policy-making
- Teacher perception of performance
- Segregation between schools
- Disaffection with school
- Attitude of teachers in elite schools

It is simply, factually incorrect to suggest, as Raven does, that education research is dominated by work on attainment, or that it ignores wider outcomes and possible harm occurring at school (see the papers on bullying and aggression as examples). Again, my suggestion would be for Raven to read more widely. What is also noticeable about the papers in these two example issues, and more generally, is how few involve “studying the relationship between one experimental and one dependent variable at a time”. This is so even though Raven repeatedly states that such studies dominate education research. In fact, my own exhaustive reviews of the literature in many areas show that very little education research is of the kind criticised by Raven (e.g. Gorard 2012, See and Gorard 2014, See and Gorard 2015, Gorard et al. 2016, Gorard et al. 2017, Gorard et al. 2019). Indeed, only a tiny minority of education-relevant research is experimental in design. Most is small-scale, in-depth and/or theoretical.

Without irony, Raven claims that researchers regularly draw illogical conclusions. I am sure that this is so, and my own writing suggests some evidence about this. But Raven provides no examples and no references to back this claim up. Nor does he provide references or provide any examples for the three illogical conclusions that he claims are made routinely. The first is that “If everyone gets more education, everyone will get jobs”. It is hard to imagine any serious commentator saying this, and a search via Google suggests that no researcher ever has. I have heard claims that raising the level of education or qualification would ‘improve’ the workforce and/or make it easier for more people to find employment. This claim might be followed by reference to a high qualification and high employment state like Singapore. I do not find such claims persuasive, and they do seem to confuse correlation with a causal link. But such claims are much more plausible than the unrealistic straw target that Raven sets up.

Raven makes many complaints, again without demonstration or reference, that are simply not true in their exaggerated state. Some researchers *do* consider the unintended consequences of actions, and this issue of unwanted or even beneficial side effects has a wide literature. Researchers *do* challenge both funders’ interpretation of problems, and (perhaps overly) challenge the imposition of supposedly research-led interventions. The UK REF process awards universities with recurrent annual funding to pay for academics to conduct research as they wish, on what they want to, and merely asks very seven years or so for an account of what difference that money made. It pays salaries for a proportion of every week when academics do not have to ‘earn’ money from grants or teaching, and so it frees them to think, criticise, have impact and so on. It is hard to envisage any real-life funding system that could be freer from day-to-day oversight and central control. Similarly the UKRI/ESRC and other funding councils provide most of their funding for open calls, in which any academic can propose anything they

like. Neither they nor the REF insist on ‘approving publications’. Nor do they constrict funding to a government agenda, or interfere at all with research. Other funders like charities (e.g. Nuffield Foundation or the Education Endowment Foundation) are deliberately set up at arm’s length from government, and also do not fit Raven’s description. Of course none of these bodies is perfect, but the flaws are more to do with their peer-review procedures than anything intrinsically sinister about them. Because Raven’s conclusions are unwarranted, the ensuing recommendations also do not make sense, are not needed, or already exist.

There are many statements in the Raven paper I have sympathy with. For example, I have been very critical of hyper-syntheses like those of Hattie (2008), but I have done so by providing direct and accessible evidence of their flaws (Gorard 2018). In fact, I am always ready to criticise examples of education research, and have found in reviews that the vast majority is not trustworthy (as cited above). The ideas that education is now conceived very narrowly, and that there are unintended consequences of policy and practice decisions, whether evidence-led or not, are not new. They are actually widely accepted. Similarly, the experience of policy-makers and other stakeholder cherry-picking isolated bits of evidence to support an existing agenda is not new, and is familiar to many researchers. There are other examples of statements that *could* be supported by coherent argument or evidence, but Raven just does not do so, here or in the trail of writing as far back as I have been able to trace it. The paper contributes nothing to the improvement of education research. Its high crackpot index is probably warranted on this occasion.

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